Proposed 2024 Science Extended

Wyoming Science Extended Standards & Achievement Level Descriptors

Effective - xx, 2025

To be Fully Implemented in Districts by the Beginning of School Year 2027-28

The Wyoming Extended Standards (WYES) provide a common set of goals and expectations for all students with the most significant cognitive disabilities (SMSCD) in Wyoming—approximately 1% of students. The WYES define the essential knowledge and skills that allow SMSCD to achieve high academic expectations and to access the general academic curriculum. These WYES are extended from the Science WYCPS. Students learning the Extended Standards are assessed with the WY-ALT assessments.

Kindergarten Science Extended Standards

Physical Science

PS2 Motion and Stability: Forces and Interactions

SES-K-PS2-1 Identify the effects of pushes and pulls on the motion of an object.

- Level IV Students will: Conduct an investigation to compare the effects of different strengths, or different directions, of pushes and pulls on the motion of an object.
- Level III Students will: Identify the effects of pushes and pulls on the motion of an object.
- Level II Students will: Participate in activities that demonstrate how different objects move.
- Level I Students will: Attend to activities that demonstrate how objects move.

PS3 Energy

SES-K-PS3-2 Identify structures that will reduce the warming effect of sunlight.

- Level IV Students will: Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.
- Level III Students will: Identify structures that will reduce the warming effect of sunlight.
- Level II Students will: Recognize that certain structures reduce the warming effect of sunlight.
- Level I Students will: Attend to activities that demonstrate how structures reduce the warming effect of sunlight.

Life Science

No standards exist for this domain for Kindergarten.

Earth and Space Science

ESS3 Earth and Human Activity

SES-K-ESS3-1 Describe how animals meet their needs based on where they live.

- Level IV Students will: Demonstrate the relationship between the needs of animals and the places they live.
- Level III Students will: Describe how animals meet their needs based on where they live.

- Level II Students will: Match animals to the place they live.
- Level I Students will: Attend to activities that demonstrate the relationship between animals and where they live.

Engineering and Design

ETS1 Engineering, Technology, & Applications of Science

SES-K-2-ETS1-2 Identify the shape of an object and its function.

- Level IV Students will: Represent how the shape of an object helps it function as needed to solve a given problem.
- Level III Students will: Identify the shape of an object and its function.
- Level II Students will: Match an object with a shape.
- Level I Students will: Attend to activities that demonstrate how the shape of objects help it function as needed to solve a given problem.

Grade 1 Science Extended Standards

Physical Science

PS4 Waves and Their Applications in Technologies for Information Transfer

SES-1-PS4-4 Identify multiple devices that communicate over a distance.

- Level IV Students will: Create a device that communicates over a distance.
- Level III Students will: Identify multiple devices that communicate over a distance.
- Level II Students will: Identify one device that uses sound to communicate over a distance.
- Level I Students will: Attend to activities that demonstrate how devices communicate over a distance.

Life Science

LS1 From Molecules to Organisms: Structure and Processes

SES-1-LS1-1 Identify an object used by humans that mimics an animal's or a plant's external parts.

- Level IV Students will: Compare the animal/plant external parts to the human object and how they serve similar purposes.
- Level III Students will: Identify an object used by humans that mimics an animal's or a plant's external parts.
- Level II Students will: Match the animal/plant external part to the human object that serves a similar purpose.
- Level I Students will: Attend to activities that compare an animal's or plant's external parts to human objects that solve problems.

Earth and Space Science

ESS1 Earth's Place in the Universe

SES-1-ESS1-1 Identify which objects are found in the sky during the day and at night.

- Level IV Students will: Demonstrate how the moon, sun, and stars can be observed at different times of the day and night.
- Level III Students will: Identify which objects are found in the sky during the day and at night.

- Level II Students will: Distinguish between daytime sky and nighttime sky.
- Level I Students will: Attend to activities that demonstrate how objects found in the sky are different during the day and night.

Engineering and Design

ETS1 Engineering, Technology, & Applications of Science

SES-K-2-ETS1-1 Identify appropriate tool(s) when presented with a problem.

- Level IV Students will: Represent a tool, existing or nonexistent, to solve a given problem.
- Level III Students will: Identify appropriate tool(s) when presented with a problem.
- Level II Students will: Match the tool to the use.
- Level I Students will: Attend to activities that demonstrate tools being used to solve problems.

Grade 2 Science Extended Standards

Physical Science

PS1 Matter and Its Interactions

SES-2-PS1-2 Determine the material that is best suited for an intended purpose.

- Level IV Students will: Investigate, and communicate, the properties of a material that makes it best suited for an intended purpose.
- Level III Students will: Determine the material that is best suited for an intended purpose.
- Level II Students will: Sort different materials by their properties.
- Level I Students will: Attend to activities that demonstrate materials being used for their intended purpose.

Life Science

LS2 Ecosystems: Interactions, Energy, and Dynamics

SES-2-LS2-2 Participate in activities that demonstrate pollination or seeding, and communicate a way that seeds are dispersed.

- Level IV Students will: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
- Level III Students will: Participate in activities that demonstrate pollination or seeding, and communicate a way that seeds are dispersed.
- Level II Students will: Participate in activities that demonstrate pollination or seeding.
- Level I Students will: Attend to, or participate in, activities that demonstrate pollination or seeding.

LS4 Biological Evolution: Unity and Diversity

SES-2-LS4-1 Make a model of an animal in its habitat.

- Level IV Students will: Model, and describe, the habitat of an animal.
- Level III Students will: Make a model of an animal in its habitat.
- Level II Students will: Match an animal to its correct habitat.
- Level I Students will: Attend to activities that demonstrate diversity of life in different habitats.

Earth and Space Science

ESS2 Earth's Systems

SES-2-ESS2-1 Participate in activities that demonstrate a design made to slow or prevent water from passing, and communicate the changes.

- Level IV Students will: Develop a simple model that demonstrates a design made to slow or prevent water from passing.
- Level III Students will: Participate in activities that demonstrate a design made to slow or prevent water from passing, and communicate changes.
- Level II Students will: Participate in activities that demonstrate a design made to slow or prevent water from passing.
- Level I Students will: Attend to activities that demonstrate a design made to slow or prevent water from passing.

Engineering and Design

ETS1 Engineering, Technology, & Applications of Science

SES-K-2-ETS1-3 Identify the differences of two objects designed to solve the same problem.

- Level IV Students will: Test and compare the differences of two objects designed to solve the same problem.
- Level III Students will: Identify the differences of two objects designed to solve the same problem.
- Level II Students will: Match the tool to solve the given problem.
- Level I Students will: Attend to activities that compare two objects designed to solve the same problem.

Grade 3 Science Extended Standards

Physical Science

PS2 Motion and Stability: Forces and Interactions

SES-3-PS2-3 Demonstrate the effects of a magnetic, or electric, interaction between two objects not in contact with each other.

- Level IV Students will: Ask questions based on observations of a magnetic, or electric, interaction between two objects not in contact with each other.
- Level III Students will: Demonstrate the effects of a magnetic, or electric, interaction between two objects not in contact with each other.
- Level II Students will: Explore magnetic, or electric, interactions between two objects not in contact with each other.
- Level I Students will: Attend to the presence of magnetic or electric interactions between two objects not in contact with each other.

Life Science

LS3 Heredity: Inheritance and Variation of Traits

SES-3-LS3-1 Use evidence to show how offspring inherit physical traits that resemble those of their parents.

- Level IV Students will: Provide evidence of specific traits that offspring inherit from their parents and that these traits can vary.

- Level III Students will: Use evidence to show how offspring inherit physical traits that resemble those of their parents.
- Level II Students will: Match offspring that resemble their parents.
- Level I Students will: Attend to teacher matching offspring to parent.

LS4 Biological Evolution: Unity and Diversity

SES-3-LS4-4 Identify what happens to organisms when there is a major environmental change.

- Level IV Students will: Predict what happens to an organism when there is a major environmental change.
- Level III Students will: Identify what happens to organisms when there is a major environmental change.
- Level II Students will: Identify major environmental changes.
- Level I Students will: Attend to a presentation of pictures of major environmental changes.

Earth and Space Science

ESS3 Earth and Human Activity

SES-3-ESS3-1 Communicate a solution that reduces the impacts of weather.

- Level IV Students will: Create a solution that reduces the impact of a weather condition upon their environment.
- Level III Students will: Communicate a solution that reduces the impacts of weather.
- Level II Students will: Match a solution that reduces the impact of a weather condition.
- Level I Students will: Attend to a presentation of solutions that reduce the impacts of weather.

Engineering and Design

ETS1 Engineering, Technology, & Applications of Science

SES-3-5-ETS1-1 Given a solution to a simple design problem, students are able to identify materials needed to solve a simple design problem, provided a variety of materials.

- Level IV Students will: Define a solution for a simple design problem that reflects a need or a want.
- Level III Students will: Given a solution to a simple design problem, students are able to identify materials needed to solve a simple design problem, provided a variety of materials.
- Level II Students will: Match the appropriate materials for a project given a list of possible materials to complete a simple design problem.
- Level I Students will: Attend to activities that demonstrate finding a solution to a simple design problem.

Grade 4 Science Extended Standards

Physical Science

PS3 Energy

SES-4-PS3-4 Identify devices that use different types of energy.

- Level IV Students will: Create a device that uses energy.
- Level III Students will: Identify devices that use different types of energy.

- Level II Students will: Sort objects that require energy and those that do not require energy.
- Level I Students will: Attend to a presentation showing devices that use different types of energy.

PS4 Waves and Their Applications in Technologies for Information Transfer

SES-4-PS4-1 Use a model to show what a wave looks like.

- Level IV Students will: Use a model to demonstrate different wave patterns.
- Level III Students will: Use a model to show what a wave looks like.
- Level II Students will: Identify a wave.
- Level I Students will: Attend to a demonstration of wave movement.

SES-4-PS4-3 Use a method to send or receive information.

- Level IV Students will: Generate a signal to transfer information.
- Level III Students will: Use a method to send or receive information.
- Level II Students will: Respond to the signal of transfer of information.
- Level I Students will: Attend to the teacher modeling a transfer of information.

Life Science

LS1 From Molecules to Organisms: Structure and Processes

SES-4-LS1-1 Use a model to demonstrate that plants and animals have structures that support their survival.

- Level IV Students will: Make a model that demonstrates how a structure functions to help an organism survive.
- Level III Students will: Use a model to demonstrate that plants and animals have structures that support their survival.
- Level II Students will: Match structures for survival to an organism.
- Level I Students will: Attend to a demonstration of plant and animal structures that support their survival.

Earth and Space Science

ESS1 Earth's Place in the Universe

SES-4-ESS1-1 Describe that landscapes can change.

- Level IV Students will: Describe/communicate that landscapes can change over time.
- Level III Students will: Describe that landscapes can change.
- Level II Students will: Make observations of landscape differences.
- Level I Students will: Attend to a presentation of landscapes.

Engineering and Design

ETS1 Engineering, Technology, & Applications of Science

SES-3-5-ETS1-2 Generate more than one possible solution to a problem.

- Level IV Students will: Generate more than one possible solution to a problem, and communicate which solution is most likely to meet the criteria.
- Level III Students will: Generate more than one possible solution to a problem.
- Level II Students will: Match a solution to the problem that best meets criteria of the problem.
- Level I Students will: Attend to activities that compare possible solutions to a problem.

Grade 5 Science Extended Standards

Physical Science

PS1 Matter and Its Interactions

SES-5-PS1-4 Determine whether mixing two substances results in a new substance.

- Level IV Students will: Determine, and communicate, which mixtures result in a new substance.
- Level III Students will: Determine whether mixing two substances results in a new substance.
- Level II Students will: Observe, and determine, which two substances, when mixed, result in a new substance.
- Level I Students will: Attend to teacher mixing two substances which results in a new substance, and mixing two substances which results in no new substance.

PS3 Energy

SES-5-PS3-1 Use models to describe that plants capture energy from sunlight.

- Level IV Students will: Use a model to describe that energy in animals' food was once energy from the sun.
- Level III Students will: Use models to describe that plants capture energy from sunlight.
- Level II Students will: Identify that plants need sunlight to grow.
- Level I Students will: Attend to pictures of plants with the sun and pictures of plants without sun.

Life Science

LS2 Ecosystems: Interactions, Energy, and Dynamics

SES-5-LS2-1 Use a model to describe a food chain with multiple organisms.

- Level IV Students will: Develop a model to describe a food chain with multiple organisms.
- Level III Students will: Use a model to describe a food chain with multiple organisms.
- Level II Students will: Match the organism to the matter that is associated with the organism in the food chain.
- Level I Students will: Attend to a presentation of a food chain with multiple organisms.

Earth and Space Science

ESS1 Earth's Place in the Universe

SES-5-ESS1-2 Investigate changes in shadows and/or daily changes in day and night.

- Level IV Students will: Using a model, describe changes in shadows and/or daily changes in day and night.
- Level III Students will: Investigate changes in shadows and/or daily changes in day and night.
- Level II Students will: Observe changes in shadows and/or daily changes in day and night.
- Level I Students will: Attend to a demonstration that shows changes in shadows and/or daily changes in day and night.

ESS3 Earth and Human Activity

SES-5-ESS3-1 Describe a way to reuse or recycle a resource.

- Level IV Students will: Describe ways reusing or recycling a resource is a benefit.
- Level III Students will: Describe a way to reuse or recycle a resource.

- Level II Students will: Explore ways to reuse or recycle a resource.
- Level I Students will: Attend to others reusing or recycling a resource.

Engineering and Design

ETS1 Engineering, Technology, & Applications of Science

SES-3-5-ETS1-3 Determine whether or not an engineering design product meets criteria, and communicate failure point(s).

- Level IV Students will: Determine whether or not the engineering design product meets criteria, communicate failure point(s), and provide possible improvements.
- Level III Students will: Determine whether or not an engineering design product meets criteria, and communicate failure point(s).
- Level II Students will: Determine whether or not an engineering design product meets criteria.
- Level I Students will: Attend to activities that carry out fair tests in which failure points in an engineering design product are compared and improved.

Middle School Science Extended Standards

Physical Science

PS1 Matter and Its Interactions

SES-MS-PS1-1 Model how simple parts can be put together to make more complex structures.

- Level IV Students will: Model how simple parts can be put together to make a common chemical molecule.
- Level III Students will: Model how simple parts can be put together to make more complex structures.
- Level II Students will: Select two common objects that can be combined to make a familiar, complex structure.
- Level I Students will: Attend to lessons modeling simple parts being put together to make complex structures.

SES-MS-PS1-4 Describe the relationship between changes in temperature, kinetic energy, and changes in states of matter for water.

- Level IV Students will: Predict what will happen if you add energy to water or take energy away.
- Level III Students will: Describe the relationship between changes in temperature, kinetic energy, and changes in states of matter for water.
- Level II Students will: Identify a state of matter for water.
- Level I Students will: Engage with solids and liquids.

SES-MS-PS1-5 Show that the amount of a substance used in a reaction does not change even if the new substance looks different.

- Level IV Students will: Use a model to demonstrate that the total mass does not change in a chemical reaction.
- Level III Students will: Show that the amount of a substance used in a reaction does not change even if the new substance looks different.

- Level II Students will: Indicate the number of objects that are put into a container is the same number that can be taken out.
- Level I Students will: Attend to tasks and/or demonstrations showing that what goes into a container is the same as what comes out.

PS2 Motion and Stability: Forces and Interactions

SES-MS-PS2-1 Investigate, and describe, the direction of motion of two colliding objects of equal and of unequal masses.

- Level IV Students will: Predict the resulting direction of motion of two colliding objects of equal and of unequal masses.
- Level III Students will: Investigate, and describe, the direction of motion of two colliding objects of equal and unequal masses.
- Level II Students will: Produce collisions between two objects of equal and of unequal masses.
- Level I Students will: Observe collisions between two objects.

SES-MS-PS2-2 Investigate and describe the change in an object's motion based on the forces on the object and the mass of the object.

- Level IV Students will: Investigate and predict the change in an object's motion based on the forces on the object and the mass of the object.
- Level III Students will: Investigate and describe the change in an object's motion based on the forces on the object and the mass of the object.
- Level II Students will: Participate in an investigation that shows the change in an object's motion based on the forces on the object and the mass of the object.
- Level I Students will: Attend to an investigation that shows the change in an object's motion based on the forces on the object and the mass of the object.

PS3 Energy

SES-MS-PS3-2 Identify differing amounts of potential energy on a labeled diagram.

- Level IV Students will: Order a group of objects from least to greatest amount of potential energy.
- Level III Students will: Identify differing amounts of potential energy on a labeled diagram.
- Level II Students will: Participate in a discussion about position and potential energy.
- Level I Students will: Attend to a lesson about potential energy.

SES-MS-PS3-4 Investigate and describe the change in a substance's temperature when the type of matter, mass, or the amount of energy transferred is changed.

- Level IV Students will: Investigate and predict how a change in the type of matter, the mass, or the amount of energy transferred to a substance changes the substance's temperature.
- Level III Students will: Investigate and describe the change in a substance's temperature when the type of matter, mass, or the amount of energy transferred is changed.
- Level II Students will: Participate in an investigation that shows how a change in the type of matter, the mass, or the amount of energy transferred to a substance changes the temperature of the substance.
- Level I Students will: Attend to an investigation that shows how a change in the type of matter, the mass, or the amount of energy transferred to a substance changes the temperature of the substance.

PS4 Waves and Their Applications in Technologies for Information Transfer

SES-MS-PS4-1 Identify larger amplitude waves as having more energy.

- Level IV Students will: Measure the amplitude of two different waves to communicate the difference in energy quantitatively.
- Level III Students will: Identify larger amplitude waves as having more energy.
- Level II Students will: Select the larger amplitude of two wave patterns.
- Level I Students will: Attend to a diagram of waves.

SES-MS-PS4-2 Describe how light waves behave when interacting with various materials.

- Level IV Students will: Select an object that reflects light, a material that absorbs light, and a substance that light can be transmitted through.
- Level III Students will: Describe how light waves behave when interacting with various materials.
- Level II Students will: Observe a laser light interacting with different liquids.
- Level I Students will: Observe light being reflected.

Life Science

LS1 From Molecules to Organisms: Structure and Processes

SES-MS-LS1-2 Explore, and identify, the structure and function of major parts of a cell (limited to nucleus, cell membrane, cell wall, and chloroplast).

- Level IV Students will: Identify the difference between plant and animal cells.
- Level III Students will: Explore, and identify, the structure and function of major parts of a cell.
- Level II Students will: Identify major structures within a plant cell.
- Level I Students will: Attend to a lesson about cells and their function.

SES-MS-LS1-3 Model that a body system is made up of interacting organs.

- Level IV Students will: Describe how various body systems interact.
- Level III Students will: Model that a body system is made up of interacting organs.
- Level II Students will: Identify organs within various body systems.
- Level I Students will: Attend to the lesson about the various organs within a body system.

SES-MS-LS1-6 Model what a plant uses, what it creates, and what the plant releases during photosynthesis.

- Level IV Students will: Design an experiment to determine what would occur to a plant if one of the needed aspects of photosynthesis was missing.
- Level III Students will: Model what a plant uses, what it creates, and what the plant releases during photosynthesis.
- Level II Students will: Discuss/identify the specific things that are required in order for photosynthesis to occur.
- Level I Students will: Attend to a lesson on photosynthesis.

LS2 Ecosystems: Interactions, Energy, and Dynamics

SES-MS-LS2-3 Explain that energy moves among living and non-living parts of an ecosystem.

- Level IV Students will: Model an energy flow sequence.
- Level III Students will: Explain that energy moves among living and non-living parts of an ecosystem.
- Level II Students will: Recognize that people and animals eat.
- Level I Students will: Attend to a lesson about animals eating different things.

SES-MS-LS2-5 Identify an action that maintains or improves ecosystems and biodiversity.

- Level IV Students will: Communicate the effects of an action that improves ecosystems or biodiversity.
- Level III Students will: Identify an action that maintains or improves ecosystems and biodiversity.
- Level II Students will: Distinguish between images that show high biodiversity and low biodiversity.
- Level I Students will: Attend to a lesson about biodiversity.

LS3 Heredity: Inheritance and Variation of Traits

SES-MS-LS3-1 Explain that organisms have differences in their traits that can affect their survival.

- Level IV Students will: Identify changes in an organism that would lead to changes in the chance of survival for the organism.
- Level III Students will: Explain that organisms have differences in their traits that can affect their survival.
- Level II Students will: Select a beneficial environment for an organism based on its physical traits.
- Level I Students will: Attend to a lesson about physical traits of organisms.

SES-MS-LS3-2 Students will investigate, and identify, features of living organisms that come from their parents.

- Level IV Students will: Use a model (Punnett Square) to describe results in offspring with genetic variation.
- Level III Students will: Investigate, and identify, features of living organisms that come from their parents.
- Level II Students will: Identify similarities and differences between plant and animal parents and their offspring.
- Level I Students will: Attend to, and recognize, that organisms differ within the same species.

LS4 Biological Evolution: Unity and Diversity

SES-MS-LS4-1 Compare fossils with plants and animals that exist today.

- Level IV Students will: Using a model of a fossil record, identify extinction points of a fossil organism.
- Level III Students will: Compare fossils with plants and animals that exist today.
- Level II Students will: Examine various fossils.
- Level I Students will: Attend to information presented about fossils.

SES-MS-LS4-5 Identify desirable traits that can be passed on to offspring.

- Level IV Students will: Communicate a specific example of how humans have selected a desirable trait in an organism.
- Level III Students will: Identify desirable traits that can be passed on to offspring.
- Level II Students will: Recognize the concept that parents pass traits to their offspring.
- Level I Students will: Attend to a lesson about organisms with traits that humans have influenced.

SES-MS-LS4-6 Demonstrate understanding that natural selection changes distribution of traits in a population over time.

- Level IV Students will: Use a graph that shows how a specific trait changes in distribution over time, and predict how the trait distribution will change in the future.

- Level III Students will: Demonstrate understanding that natural selection changes distribution of traits in a population over time.
- Level II Students will: Identify traits that are beneficial for different organisms.
- Level I Students will: Attend to images of populations that include individuals with different traits.

Earth and Space Science

ESS1 Earth's Place in the Universe

SES-MS-ESS1-1 Model the Earth-sun-moon positions for lunar phases, eclipses of the sun and moon, and seasons.

- Level IV Students will: Model the Earth-sun-moon positions and visual effects for lunar phases, eclipses of the sun and moon, and seasons.
- Level III Students will: Model the Earth-sun-moon positions for lunar phases, eclipses of the sun and moon, and seasons.
- Level II Students will: Label the Earth-sun-moon positions for lunar phases and eclipses of the sun and moon, and seasons.
- Level I Students will: Observe/participate in demonstrations showing Earth-sun-moon positions for lunar phases and eclipses of the sun and moon, and seasons.

SES-MS-ESS1-2 Model that the solar system is a collection of many varied objects, held together by gravity, that move in predictable ways. *Teacher note: varied objects can include the sun, planets, moon, asteroid belt, etc.*

- Level IV Students will: Model, and identify, the object that is the source of gravity influencing the predictable movement patterns.
- Level III Students will: Model that the solar system is a collection of many varied objects, held together by gravity, that move in predictable ways.
- Level II Students will: Model the movement of space objects, around a center object, to represent the force of gravity.
- Level I Students will: Attend to a lesson about space object movement.

ESS2 Earth's Systems

SES-MS-ESS2-1 Model the cycling processes involved in the creation of various rock forms.

- Level IV Students will: Model the rock cycle in order of rock forms and processes.
- Level III Students will: Model the cycling processes involved in the creation of various rock forms.
- Level II Students will: Compare the different rock forms.
- Level I Students will: Attend to/interact with rocks.

SES-MS-ESS2-3 Compare locations of fossils, rocks, continental shapes, and structures as evidence of past plate motions.

- Level IV Students will: Organize evidence of past formation of Earth's continents using a map.
- Level III Students will: Compare locations of fossils, rocks, continental shapes, and structures as evidence of past plate motions.
- Level II Students will: Recognize that plates move and change Earth's surface.
- Level I Students will: Attend to a lesson about past plate motions and evidence that supports the movement.

SES-MS-ESS2-4 Identify the processes involved in the cycling of Earth's water.

- Level IV Students will: Model the water cycle in correct order of processes.
- Level III Students will: Identify the processes involved in the cycling Earth's water.
- Level II Students will: Identify the direction in which water moves through the water cycle.
- Level I Students will: Attend to a lesson about the water cycle.

SES-MS-ESS2-6 Identify how latitude and altitude influence climate.

- Level IV Students will: Identify how climate patterns vary based on latitude, altitude, and geographic land distributions.
- Level III Students will: Identify how latitude and altitude influence climate.
- Level II Students will: Compare various climates.
- Level I Students will: Attend to a lesson about climate.

ESS3 Earth and Human Activity

SES-MS-ESS3-3 Model ways that humans can minimize their impact on the environment.

- Level IV Students will: Develop and execute a plan to minimize their impact on their current environment.
- Level III Students will: Model ways that humans can minimize their impact on the environment.
- Level II Students will: Recognize the ways that humans impact their environment.
- Level I Students will: Attend to a lesson about humans interacting with their environment.

Engineering and Design

ETS1 Engineering, Technology, & Applications of Science

SES-MS-ETS1-1 Describe a problem that needs to be solved.

- Level IV Students will: Develop possible solutions for a selected problem.
- Level III Students will: Describe a problem that needs to be solved.
- Level II Students will: Recognize a problem that can be solved when presented with a specific scenario.
- Level I Students will: Attend to a visualization of a problem and its solution.

ETS2 Engineering, Technology, Science, & Society

SES-MS-ETS2-2 Identify consequences of human choices.

- Level IV Students will: Identify how their personal choices affect others and their environment.
- Level III Students will: Identify consequences of human choices.
- Level II Students will: Identify choices made throughout their day.
- Level I Students will: Attend to a lesson about choices and consequences.

High School Science Extended Standards

Physical Science

PS1 Matter and Its Interactions

SES-HS-PS1-1 Using a model, identify the parts of an atom (protons, neutrons, electrons).

- Level IV Students will: Identify how many electrons are in the outermost energy level of an atom.
- Level III Students will: Using a model, identify the parts of an atom (protons, neutrons, electrons).

- Level II Students will: Identify a diagram or model of an atom.
- Level I Students will: Attend to a lesson about atomic structure.

SES-HS-PS1-2 Use a Periodic Table to identify symbols and atomic numbers for 5 of the first 20 elements (atomic #s 1 through 20).

- Level IV Students will: Use a Periodic Table to identify symbols and atomic numbers for the first 20 elements (atomic #s 1 through 20).
- Level III Students will: Use a Periodic Table to identify symbols and atomic numbers for 5 of the first 20 elements (atomic #s 1 through 20).
- Level II Students will: Use a Periodic Table to identify symbols and atomic numbers for 2 of the first 20 elements (atomic #s 1 through 20).
- Level I Students will: Attend to a lesson on the information found in a periodic table.

SES-HS-PS1-6 Conduct a chemical experiment by changing a variable.

- Level IV Students will: Compare the results of changing a variable in a series of experiments.
- Level III Students will: Conduct a chemical experiment by changing a variable.
- Level II Students will: Identify the independent variable in an experiment.
- Level I Students will: Observe an experiment in which a variable is changed.

SES-HS-PS1-7 Rearrange models to demonstrate a chemical reaction occurs through the movement of atoms.

- Level IV Students will: Use mathematical representations or models to describe that the total number of atoms does not change in a chemical reaction and thus mass is conserved.
- Level III Students will: Rearrange models to demonstrate a chemical reaction occurs through the movement of atoms.
- Level II Students will: Identify that in a chemical reaction, atoms are rearranged.
- Level I Students will: Identify that an object that has mass is made of smaller parts (atoms).

SES-HS-PS1-8 Compare models which illustrate fusion, fission, and radioactive decay.

- Level IV Students will: Create models of fusion, fission, and radioactive decay.
- Level III Students will: Compare models which illustrate fusion, fission, and radioactive decay.
- Level II Students will: Identify models of fission, fusion, and radioactive decay.
- Level I Students will: Attend to a presentation on models of fission, fusion, and radioactive decay.

PS2 Motion and Stability: Forces and Interactions

SES-HS-PS2-3 Select between a variety of designs to minimize force on an object during a collision, and record outcomes.

- Level IV Students will: Apply scientific and engineering ideas to design a device that minimizes the force on an object during a collision, and record outcomes.
- Level III Students will: Select between a variety of designs to minimize force on an object during a collision, and record outcomes.
- Level II Students will: Predict (from provided designs) which design will minimize the force on an object during a collision.
- Level I Students will: Observe a demonstration of given designs to minimize the impact of force on an object during a collision.

SES-HS-PS2-5 Conduct an experiment to test for a magnetic field around an electromagnet.

- Level IV Students will: Conduct an experiment which demonstrates that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.
- Level III Students will: Conduct an experiment to test for a magnetic field around an electromagnet.
- Level II Students will: Identify a magnetic field.
- Level I Students will: Attend to a demonstration of a magnetic field around an electromagnet.

SES-HS-PS2-6 Demonstrate why material selection is important in building stable structures.

- Level IV Students will: Build, or design, a stable structure.
- Level III Students will: Demonstrate why material selection is important in building stable structures.
- Level II Students will: Given multiple pictures of familiar structures, select the one that illustrates the strongest structural elements.
- Level I Students will: Attend to a demonstration of why material selection is important in building a stable structure.

PS3 Energy

SES-HS-PS3-3 Conduct an experiment to convert one form of energy to another form of energy.

- Level IV Students will: Conduct an experiment which demonstrates devices with varying levels of efficiency and compare the results.
- Level III Students will: Conduct an experiment to convert one form of energy to another form of energy.
- Level II Students will: Given an example or illustration, identify one type of energy in an energy conversion.
- Level I Students will: Attend to a demonstration of energy conversion.

PS4 Waves and Their Applications in Technologies for Information Transfer

SES-HS-PS4-1 Demonstrate that simple waves have a repeating pattern with a specific wavelength, frequency, and amplitude.

- Level IV Students will: Demonstrate how to change the wavelength, frequency, and amplitude of a wave.
- Level III Students will: Demonstrate that simple waves have a repeating pattern with a specific wavelength, frequency, and amplitude.
- Level II Students will: Identify two or more types of waves.
- Level I Students will: Attend to a demonstration of how a wave moves.

SES-HS-PS4-5 Identify how waves are used to accomplish tasks or share information.

- Level IV Students will: Compare and contrast between different energy sources and how the amount of energy affects the wave behavior.
- Level III Students will: Identify how waves are used to accomplish tasks or share information.
- Level II Students will: Differentiate between devices that use waves to function versus devices that do not in order to function/operate.
- Level I Students will: Generate waves of different energies.

Life Science

LS1 From Molecules to Organisms: Structure and Processes

SES-HS-LS1-1 Construct a model of DNA.

- Level IV Students will: Construct, and label, a model of DNA.
- Level III Students will: Construct a model of DNA.
- Level II Students will: Match a picture of DNA structure to the term DNA.
- Level I Students will: Attend to the construction of a model of DNA.

SES-HS-LS1-6 Construct models of carbon-based molecules.

- Level IV Students will: Construct, and label, models of carbon-based molecules.
- Level III Students will: Construct models of carbon-based molecules.
- Level II Students will: Recognize a model of a carbon-based molecule.
- Level I Students will: Attend to the construction of a model of a carbon-based molecule.

LS2 Ecosystems: Interactions, Energy, and Dynamics

SES-HS-LS2-5 Construct a model of the carbon cycle that includes interaction with the atmosphere.

- Level IV Students will: Construct and label a model of the carbon cycle that includes an explanation of cycling among the biosphere, atmosphere, hydrosphere, and geosphere.
- Level III Students will: Construct a model of the carbon cycle that includes interaction with the atmosphere.
- Level II Students will: Label the parts of the carbon cycle.
- Level I Students will: Attend to a lesson about the role animals play in the carbon cycle.

SES-HS-LS2-6 Demonstrate how a change in conditions can change an ecosystem.

- Level IV Students will: Demonstrate and explain how changing conditions can change an ecosystem.
- Level III Students will: Demonstrate how a change in conditions can change an ecosystem.
- Level II Students will: Recognize factors that can affect changes on an ecosystem.
- Level I Students will: Recognize a factor that can affect change.

SES-HS-LS2-7 Compare and contrast detrimental or enhancing impacts on the environment.

- Level IV Students will: Design a solution for a detrimental impact on the environment.
- Level III Students will: Compare and contrast detrimental or enhancing impacts on the environment.
- Level II Students will: Identify impacts on the environment.
- Level I Students will: Observe impacts on the environment.

LS3 Heredity: Inheritance and Variation of Traits

SES-HS-LS3-2 Demonstrate that mutations can occur in DNA.

- Level IV Students will: Model that a mutation in the DNA can result in a physical change that can be passed on to offspring.
- Level III Students will: Demonstrate that mutations can occur in DNA.
- Level II Students will: Recognize the physical effect of a genetic mutation.
- Level I Students will: Attend to a lesson about DNA mutation.

LS4 Biological Evolution: Unity and Diversity

SES-HS-LS4-2 Demonstrate how a population can adapt to survive.

- Level IV Students will: Explain how and why adaptations can help a population survive in a given environment.
- Level III Students will: Demonstrate how a population can adapt to survive.
- Level II Students will: Recognize that a population's adaptation assists in its survival.
- Level I Students will: Recognize changes in the environment that necessitate adaptation.

SES-HS-LS4-5 Using evidence, indicate the emergence of a new species over time.

- Level IV Students will: Examine and explain the emergence of a new species over time.
- Level III Students will: Using evidence, indicate the emergence of a new species over time.
- Level II Students will: Given an adaptation vs. non-adaptation, select the item that demonstrates the adaptation.
- Level I Students will: Given an adaptation, select the environmental condition that would cause it.

SES-HS-LS4-6 Observe and describe the impacts of human activity on biodiversity.

- Level IV Students will: Evaluate the impact of human activity on biodiversity.
- Level III Students will: Observe and describe the impacts of human activity on biodiversity.
- Level II Students will: Identify, as positive or negative, various impacts of human activity on biodiversity.
- Level I Students will: Attend to a simulation of the impacts of human activity on biodiversity.

Earth and Space Science

ESS1 Earth's Place in the Universe

SES-HS-ESS1-2 Construct a model of the expanding Universe.

- Level IV Students will: Construct a model of the expanding Universe and that all matter came from a single point.
- Level III Students will: Construct a model of the expanding Universe.
- Level II Students will: Identify a model that illustrates the Big Bang theory.
- Level I Students will: Attend to a model of the expanding Universe.

SES-HS-ESS1-5 Use models to explore the theory of plate tectonics.

- Level IV Students will: Use models to explain the theory of plate tectonics.
- Level III Students will: Use models to explore the theory of plate tectonics.
- Level II Students will: Use a model to identify Earth's current continental formations.
- Level I Students will: Given picture(s) or model(s), determine which is land and which is water.

ESS2 Earth's Systems

SES-HS-ESS2-2 Construct a model demonstrating that one change to Earth's surface can cause changes to other Earth systems.

- Level IV Students will: Construct, and explain, a model demonstrating that one change to Earth's surface can cause changes to other Earth systems.
- Level III Students will: Construct a model demonstrating that one change to Earth's surface can cause changes to other Earth systems.
- Level II Students will: Identify an Earth surface feature that is going through a change.
- Level I Students will: Attend to a lesson/demonstration of changing Earth surface features.

SES-HS-ESS2-4 Use a model to identify changes in the flow of energy that can change the climate.

- Level IV Students will: Using a model, evaluate changes in the flow of energy that can change the climate.
- Level III Students will: Use a model to identify changes in the flow of energy that can change the climate.
- Level II Students will: Identify energy changes that can change the climate.
- Level I Students will: Attend to the construction of a model demonstrating changes in the flow of energy that can change the climate.

ESS3 Earth and Human Activity

SES-HS-ESS3-2 From factors provided, select which factors need to be considered, prior to developing energy or mineral resources.

- Level IV Students will: Identify factors to consider, prior to developing energy or mineral resources.
- Level III Students will: From factors provided, select which factors need to be considered, prior to developing energy or mineral resources.
- Level II Students will: Identify various energy or mineral resources.
- Level I Students will: Attend to an exploration of various energy and mineral resources.

SES-HS-ESS3-3 Predict which resources humans use will affect the local environment the most.

- Level IV Students will: Give causes and effects of how humans using natural resources can affect biodiversity.
- Level III Students will: Predict which resources humans use will affect the local environment the most.
- Level II Students will: Compare renewable and nonrenewable resources.
- Level I Students will: Identify natural resources all living things use.

SES-HS-ESS3-5 Use global climate models to identify global, or regional, change in climate and associated future impacts to Earth systems.

- Level IV Students will: Compare results from global climate models to make an evidence-based forecast of the current rate of global, or regional, change in climate and associated future impacts to Earth systems.
- Level III Students will: Use global climate models to identify global, or regional, change in climate and associated future impacts to Earth systems.
- Level II Students will: Use global climate models to identify global or regional change in climate.
- Level I Students will: Attend to a presentation about global, or regional, change in climate.

Engineering and Design

ETS1 Engineering, Technology, & Applications of Science

SES-HS-ETS1-3 Identify solutions to a real-world problem based on a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.

- Level IV Students will: Identify a solution to a real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
- Level III Students will: Identify solutions to a real-world problem based on a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
- Level II Students will: Identify solutions to a problem that personally affects them based on a range of constraints, including cost, safety, social, and environmental impacts.
- Level I Students will: Identify a solution to a problem that personally affects them and develop a consistent positive response.

SES-HS-ETS1-5 Given reliable materials, identify valid vs. invalid claims.

- Level IV Students will: Identify the validity and reliability of claims in a variety of materials.
- Level III Students will: Given reliable materials, identify valid vs. invalid claims.
- Level II Students will: Identify a truth vs. a lie.
- Level I Students will: Identify real vs. not real.